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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/921,171	CHAN ET AL.	
	Examiner	Art Unit	
	Andrew C. Flanders	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47,49 and 53-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47,49 and 53-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 13 September 2007 have been fully considered but they are not persuasive.

Applicant alleges:

> Applicants respectfully disagree with the Examiner about the arguments, "[s]toring this digital audio player program in the ROM/BIOS would have been obvious to one of ordinary skill in the art." Applicants understand that the Watanabe reference discloses a general-purpose computer with a secondary operating system. However, the Watanabe reference does not disclose, suggest or teach that the secondary operating system is stored in BIOS of the general-purpose computer system. In fact, referring to the abstract and Col. I, Line 45-Col. 16, Line 20, the Watanabe reference discloses a computer system with a hard disk having three partitions. Two operating Systems are located respectively on the second and the third partitions, see Col. 16, Lines 5-6. Applicants respectfully submit that two operating systems on two partitions of a hard drive in the Watanabe reference actually teaches away from the claimed invention of having a secondary operating system stored in BIOS."
>
> "Furthermore, Applicants respectfully disagree "Applicant acknowledges that storing this in any ROM based memory is a known alternative to storing in the BIOS." In disclosure P. 12, it states, "[i]n this configuration the mini-OS 80 is stored in the BIOS, although those skilled in the art will recognize that the mini-OS could alternatively be stored in its own ROM (either within special purpose circuit 40 or external to it), a hard disk, or other media." Therefore, Applicants respectfully submit that the statement in the Office Action mischaracterizes the actual statement in the application. Furthermore, the application only discloses alternative embodiments, not the equivalents of claimed elements. Most importantly, the claims should be evaluated by their limitations."

Examiner respectfully disagrees. At the time the invention was made, moving data from one storage area (i.e. a hard disk) to another storage area (i.e. a BIOS) would have been obvious to try as well as notoriously well known. Applicant recognizes this

and intentionally and expressly makes it known that these are art recognized equivalents (or alternative embodiments) as stated in the arguments. Furthermore it has been made abundantly clear throughout the prosecution history that storing an OS in a BIOS is notoriously well known. One need only to review the Jacobs reference in cols. 1 and 2. which discloses an alternate audio mode operating system stored in BIOS (also see cols. 4 and 5).

Applicants further allege:

> "Applicants respectfully submit that Birrell does not disclose any audio controller adapted to cause the drive to read the compressed audio data, to cause the CPU to decompress the compressed audio data and adapted to be operated independently of a operating system. After reviewing the Birrell reference, Applicants respectfully submit that the disk controller 106 in the Birrell reference cannot be operated without control programs. In fact, Applicants cannot find any description related to the disk controller 106."

Examiner respectfully disagrees. The disk controller is a distinct module, separate from the operating system. Thus, while it may take commands form the control programs, it is not a part of them. It follows then, that it acts independently (i.e. does its job separately from the control programs as it is not part of them).

Applicants further allege:

> Furthermore, Applicants hereby traverse the finding by the Examiner as "official notice" that it would have been obvious to store the decompressed data prior to the A/D conversion. Applicants respectfully assert that the taking of "official notice" is inappropriate since it is not suggested or rendered obvious by the Birrell reference for the use of a second operating system for accessing compressed data, and

> decompressing the data. Applicants respectfully requests that the Examiner produce a prior art reference in lieu of official notice.

This has clearly been shown twice prior in the prosecution history, as well as in the history of copending cases. For Applicant's review, the passages are copied below:

1.) "In response to Applicant's traversal of the Official notice, .Examiner provides evidence in Wachi et al. (U.S. RE37,367 E). Wachi teaches: Before the D/A converter 23, an FIFO data buffer (not shown) is normally provided; col. 7 lines 45 - 50; and the data buffer is provided before the D/A converter 23 in order to temporarily store the generated wave data of the sound; col. 12 lines 60 - 65. Wachi discloses that this is to remove jitter (i.e. gaps in playback) in some configurations; col. 12 lines 55 - 60."

2.) Kolluru (U.S. 6,122,619) Fig. 3 discloses a multimedia decoder (228) that includes an audio core (Fig. 4 element 318) which includes an output RAM (Fig. 7 element 512) which acts as an output buffer (col. 9 lines 15 – 17). The audio core/decoder is configured to perform AC-3 audio bit stream decoding, in other words taking compressed AC-3 audio input and decompressing it for output, which is then subsequently buffered in memory (512).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 20, 31, 32, 38, 40 – 45, 47, 49 and 53 – 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (U.S. Patent 6,763,458).

Regarding **Claims 1 and 2**, Watanabe discloses:

A computer system adapted to play audio files (200), said computer system comprising:

a system CPU (102);

a memory (104);

at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (240-1 and 616);

a play list software program for selecting and storing a play list comprising one or more of said audio files (i.e. software for organizing the content and allowing the user to identify favorite audio files, storing them and providing a unique naming of the copy based on some naming convention; col. 37 lines 40 – 67 and col. 38 lines 1 – 7; and the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35);

a first operating system adapted to control at least said system CPU and said memory (i.e. the primary operating system; cols. 37, 38); and

a second operating system, said second operating system being adapted to retrieve said play list (i.e. in the digital audio mode selected by the mode selector

switch when the system is off, the system creates a sequence based on what it finds that is prepared in the directory; col. 38 lines 8 - 35) and cause said drive to read at least one said audio file of said play list (i.e. the system plays back the files stored on the drive thus it must read the audio files from the drive for the decompression and play back); to cause said system CPU to decompress the compressed audio data of said file and provide decompressed audio data (system 200's CPU; col. 38 lines 44 – 50).

Watanabe does not explicitly disclose storing the second operating system in BIOS. However Watanabe discloses storing a first operating system in a first storage region and a second operating system in a second storage region (abstract). Watanabe also discloses in an IBM PC the system ROM stores the BIOS which is executed upon power-up by the processor; col. 2 lines 14 - 30; and further that it is desirable for an "instant-on" application for certain programs such as ROM based operating systems in addition to a general-purpose full operating system (col. 5 lines 29 - 43). Storing this digital audio player program in the ROM/BIOS would have been obvious to one of ordinary skill in the art. One would have been motivated to do so to provide an "instant-on" system. Furthermore Applicant acknowledges that storing this in any ROM based memory is a known alternative to storing in the BIOS (disclosure p. 12).

Furthermore, the combination fails to explicitly disclose causing said decompressed audio data to be stored in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One

would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within the playback of the audio.

Regarding **Claims 3 – 6**, claims 3 – 6 are rejected under the same grounds as claim 1 stated above. Additionally, the claimed mini-operating system is equated with the second operating system in the rejection of claim 1. It is considered "mini" in that it is only suited to operate with a single specific task, namely playing audio files, rather than a general operating system like the first operating system. Further, Watanabe discloses an audio controller in element 122.

Regarding **Claims 7 and 8**, Watanabe discloses:

A computer system adapted to play audio files (200), said computer system comprising:

a system CPU (102);

a memory (104);

at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (240-1 and 616);

a first operating system adapted to control at least said system CPU and said memory (i.e. the primary operating system; cols. 37, 38);

a play list software program executable under said first operating system (i.e. functionality to organize the files which causes the 'primary' operating system to organize the files; col. 37 lines 57 – 67; col. 38 lines 1 – 8), said play list software

program being adapted to permit selection and storage of a play list comprising one or more of said audio files (i.e. software for organizing the content and allowing the user to identify favorite audio files, storing them and providing a unique naming of the copy based on some naming convention; col. 37 lines 40 – 67 and col. 38 lines 1 – 7; and the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35); and

a second operating system, said second operating system being adapted to retrieve said play list (i.e. in the digital audio mode selected by the mode selector switch when the system is off, the system creates a sequence based on what it finds that is prepared in the directory; col. 38 lines 8 - 35) and cause said drive to read at least one said audio file of said play list (i.e. the system plays back the files stored on the drive thus it must read the audio files from the drive for the decompression and play back); to cause said system CPU to decompress the compressed audio data of said file and provide decompressed audio data (system 200's CPU; col. 38 lines 44 – 50).

Watanabe does not explicitly disclose storing the second operating system in BIOS. However Watanabe discloses storing a first operating system in a first storage region and a second operating system in a second storage region (abstract). Watanabe also discloses in an IBM PC the system ROM stores the BIOS which is executed upon power-up by the processor; col. 2 lines 14 - 30; and further that it is desirable for an "instant-on" application for certain programs such as ROM based operating systems in addition to a general-purpose full operating system (col. 5 lines 29 - 43). Storing this digital audio player program in the ROM/BIOS would have been obvious to one of ordinary skill in the art. One would have been motivated to do so to provide an "instant-

on" system. Furthermore Applicant acknowledges that storing this in any ROM based memory is a known alternative to storing in the BIOS (disclosure p. 12).

Furthermore, the combination fails to explicitly disclose causing said decompressed audio data to be stored in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within the playback of the audio.

Regarding **Claims 9 and 10**, claims 9 and 10 are rejected under the same grounds as claim 7 stated above. Additionally, the claimed mini-operating system is equated with the second operating system in the rejection of claim 7. It is considered "mini" in that it is only suited to operate with a single specific task, namely playing audio files, rather than a general operating system like the first operating system. Further, Watanabe discloses an audio controller in element 122 which plays back the decoded audio data as controlled by the second operating system.

Regarding **Claims 11 and 12**, Watanabe discloses:

A method of playing audio files on a computer system (operation of 200 as disclosed in cols. 37 - 40), said method comprising:

booting a first operating system (i.e. starting the primary operating system; col. 37);

creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer system having at least a drive, a CPU, and a memory (computer having a drive 240-1, 616, a CPU 102, and a memory 104; software for organizing the content and allowing the user to identify favorite audio files while in the primary operating system; storing them and providing a unique naming of the copy based on some naming convention; col. 37 lines 40 – 67 and col. 38 lines 1 – 7; and the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35);

terminating said first operating system (i.e. placing the system in the off state to prepare to enter the appliance mode; col. 38)

booting a second operating system upon activation of a switch, wherein said second operating system running instead of said first operating system to operate only to play said compressed audio files (pressing a dedicated boot mode selector switch to enter the information appliance mode to listen to the digital audio selections; col. 38), said second operating system being adapted to cause said system CPU to decompress said compressed audio data(system 200's CPU; col. 38 lines 44 – 50);

reading said play list; reading said compressed audio files from said drive based on said play list (i.e. the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35);

providing said compressed audio data to said CPU for decompressing the data of said compressed audio file into decompressed audio data (col. 38 lines 35 – 57 and CPU 200; playback of MP3s requires decompression);

retrieving decompressed audio data for playing (i.e. playback of MP3s; col. 38).

Watanabe does not explicitly disclose storing the second operating system in BIOS. However Watanabe discloses storing a first operating system in a first storage region and a second operating system in a second storage region (abstract). Watanabe also discloses in an IBM PC the system ROM stores the BIOS which is executed upon power-up by the processor; col. 2 lines 14 - 30; and further that it is desirable for an "instant-on" application for certain programs such as ROM based operating systems in addition to a general-purpose full operating system (col. 5 lines 29 - 43). Storing this digital audio player program in the ROM/BIOS would have been obvious to one of ordinary skill in the art. One would have been motivated to do so to provide an "instant-on" system. Furthermore Applicant acknowledges that storing this in any ROM based memory is a known alternative to storing in the BIOS (disclosure p. 12).

Furthermore, the combination fails to explicitly disclose causing said decompressed audio data to be stored in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth.

Regarding **Claim 13**, in addition to the elements stated above regarding the various independent claims, Watanabe further discloses

a first switch, the activation of said first switch causing said first operating system to boot (i.e. the main power switch for activating the computer to load the primary operating system; 136); and

a second switch, the activation of said second switch causing said second operating system to boot (i.e. the switch for entering appliance mode; col. 38).

Regarding **Claims 31**, Watanabe further discloses:

wherein said audio controller is adapted not to cause said drive to read said compressed audio data, nor to cause said system CPU to decompress said compressed audio data, nor to cause said decompressed audio data to be stored in said memory, unless said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. the audio control system plays back audio when the system is in the off mode; col. 38).

Regarding **Claim 32**, Watanabe further discloses:

wherein said audio controller is adapted not to cause said drive to read said compressed audio data, nor to cause said system CPU to decompress said compressed audio data, nor to cause said decompressed audio data to be stored in said memory, when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of power states S0 or S3 (i.e. the audio control system plays back audio when the system is in the off mode and the appliance mode is activated; col. 38).

Regarding **Claim 41**, in addition to the elements stated regarding claim 38, Watanabe further discloses:

wherein said drive is a hard disk, removable disk, floppy disk, magnetic storage medium, optical storage medium, or IDE device (i.e. 240-1, 616)

Regarding **Claim 42**, in addition to the elements stated regarding claim 38, Watanabe further discloses:

wherein said compressed audio data is in MP3, WMA, AAC, or other secured compressed audio format (i.e. MP3 col. 38)

Regarding **Claims 43, 59 and 61**, in addition to the elements stated regarding claims 38, 58 and 60, Watanabe further discloses:

generating signals to a display for displaying song name, file/directory name and/or timing data (display subsystem 130; user controls the system using the display and can organize via file names; cols. 37 – 38).

Watanabe does not explicitly disclose that the display is an LCD display. However, Examiner takes official notice that LCD displays for use with computer systems are notoriously well known in the art. Using one to as the display for Wanatabe is desirable for numerous reasons, one being space.

Regarding **Claim 44**, in addition to the elements stated regarding claim 38, Watanabe discloses:

a plurality of function keys, and wherein said method further comprises receiving user commands generated by at least one of said plurality of function keys and utilizing said user commands to control said playing (i.e. play back controls, power button, and boot selector button; col. 38 and 39).

Regarding **Claim 45**, in addition to the elements stated regarding claim 38, Watanabe discloses:

further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. interrupts from the boot switch to control boot sequence; col. 11 lines 25 – 35).

Regarding **Claims 47 and 49**, claims 47 and 49 are rejected under the same grounds as claims 31 and 32 as stated above.

Regarding **Claim 54**, Watanabe discloses:

A method of playing audio files on a computer system (system 200 in view of audio player mode in cols 37 – 39), said method comprising:

when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of power states S0 or S3 (i.e. full power mode/primary operating system mode), executing a play list software program (i.e. digital audio organize operating under the

main operating system, cols. 37 and 38). under a full function operating system to create and store a play list comprising a list of compressed audio files residing on one or more drives of a computer having at least a drive, a CPU, and a memory (computer having a drive 240-1, 616, a CPU 102, and a memory 104; software for organizing the content and allowing the user to identify favorite audio files while in the primary operating system; storing them and providing a unique naming of the copy based on some naming convention; col. 37 lines 40 – 67 and col. 38 lines 1 – 7; and the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35); and

when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. digital audio player appliance mode; col. 38), playing the compressed audio files of said play list, using a mini-operating system operating independently of a first operating system controlling said computer system, wherein said mini-operating system is operable only to play said audio files (i.e. playing back digital audio using the dedicated appliance boot mode; col. 38).

Watanabe does not explicitly disclose storing the mini operating system in BIOS. However Watanabe discloses storing a first operating system in a first storage region and a second operating system in a second storage region (abstract). Watanabe also discloses in an IBM PC the system ROM stores the BIOS which is executed upon power-up by the processor; col. 2 lines 14 - 30; and further that it is desirable for an "instant-on" application for certain programs such as ROM based operating systems in addition to a general-purpose full operating system (col. 5 lines 29 - 43). Storing this digital audio player program in the ROM/BIOS would have been obvious to one of

ordinary skill in the art. One would have been motivated to do so to provide an "instant-on" system. Furthermore Applicant acknowledges that storing this in any ROM based memory is a known alternative to storing in the BIOS (disclosure p. 12).

Regarding **Claim 55**, Watanabe discloses:

A method of playing audio files on a computer system (system 200 in view of audio player mode in cols 37 – 39), said method comprising:

when said computer system is on, in sleep mode, in suspend to RAM mode, or in one of power states S0 or S3 (i.e. full power mode/primary operating system mode) creating and storing a play list comprising a list of compressed audio files residing on one or more drives of a computer having at least a drive, a CPU, and a memory (computer having a drive 240-1, 616, a CPU 102, and a memory 104; software for organizing the content and allowing the user to identify favorite audio files while in the primary operating system; storing them and providing a unique naming of the copy based on some naming convention; col. 37 lines 40 – 67 and col. 38 lines 1 – 7; and the digital audio player sequentially plays the prepared directory; col. 38 lines 25 – 35), wherein said list of compressed audio files is stored for playback using a mini operating system operating independently of a first operating system controlling said computer system (i.e. the created sequence which is prepared for playback in the digital audio appliance mode; col. 38), wherein said mini operating system is operable only to play

compressed audio data when said computer system is off (i.e. digital audio appliance mode is configured to play audio files and nothing more; cols. 37 – 49); and

when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. digital audio player appliance mode; col. 38), reading said play list (i.e. finding the created sequence; col. 38);

when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. digital audio player appliance mode; col. 38), reading said compressed audio files from said drive based on said play list (i.e. finding the created sequence and playing them one after the other; col. 38);

when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. digital audio player appliance mode; col. 38), providing said compressed audio data to said CPU for decompressing the data of said compressed audio file into decompressed audio data (col. 38 lines 35 – 57 and CPU 200; playback of MP3s requires decompression); and

when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. digital audio player appliance mode; col. 38), retrieving decompressed audio data for playing (i.e. playing back digital audio using the dedicated appliance boot mode; col. 38).

Watanabe fails to explicitly disclose when said computer system is off, in hibernate mode, in suspend to HDD mode, or in one of power states S4 or S5 (i.e. Watanabe's appliance mode) storing said decompressed audio data in said memory and retrieving it. However, Examiner takes official notice that it would have been

obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth.

Regarding **Claims 14 – 20, 38, 40, 53, 56 – 58 and 60** claims 14 – 20, 38, 40, 53, 56 – 58 and 60 claim limitations which are met by the rejections of the independent claims listed above.

Claims 20 – 28 and 34 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,332,175).

Regarding **Claim 20**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a system CPU; memory; and at least one drive comprising compressed audio data (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104

an audio controller coupled to said system CPU, memory and drive (i.e. a disk controller 106 that causes the drive to pass data from the disk 104 to the CPU 102);

said audio controller operating independently of said operating system, being adapted to cause said drive to read said compressed audio data (i.e. the disk controller passes audio data from the disk to the CPU; it is separate from the control programs and thus acts 'independently'), to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Birrell does not disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Regarding **Claim 21**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said audio controller is further adapted to place said CPU in standby state when said system CPU is not decompressing said compressed audio data (i.e. the control programs include a power down procedure (col. 5 lines 24 – 25) and in a preferred embodiment, one predefined power down condition is data is not being played (col. 7 lines 22 – 24)

Regarding **Claims 22**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said audio controller is further adapted to cause said decompressed audio data to be retrieved for playing (i.e. the control programs include a play procedure (col. 5 lines 20 – 21) and once the audio data has been decompressed it is played back (col. 4 lines 30 – 37)

Regarding **Claim 23**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said drive is a hard disk, removable disk, floppy disk, magnetic storage medium, optical storage medium, or IDE device (i.e. a main non-volatile storage unit, preferably a hard disk (col. 4 lines 6 – 7)

Regarding **Claims 24**, in addition to the elements stated regarding claim 20, Birrell further discloses:

wherein said compressed audio data is in MP3, WMA, AAC, or other secured compressed audio format (i.e. a compression format such as MP3 (col. 1 line 57 – 58)

Regarding **Claim 25**, in addition to the elements stated above regarding claim 20, Birrell further discloses:

further comprising at least one digital computer bus, wherein said audio controller is coupled to at least one of said system CPU, memory, and drive via said digital computer bus (i.e. a bus for interconnecting the aforementioned elements of the system (col. 4 lines 28 – 29) and said bus transfers digital data (col. 4 lines 30 – 35)

Regarding **Claim 26**, in addition to the elements stated above regarding claim 20, Birrell discloses:

further comprising a mini-OS (i.e. a small portable audio player (abstract) that includes a ROM with control programs)

Regarding **Claims 27**, in addition to the elements stated regarding claims 20 and 38, Birrell further discloses:

further comprising an LCD interface for generating signals to an LCD display for displaying song name, file/directory name and/or timing data (i.e. a user interface (fig. 1 element 116) that includes an LCD display (fig. 1 element 118) and the table of contents 152 can be viewed on the display 118, and the user can select CDs and/or individual tracks to be played (col. 4 lines 66 – 67 and col. 5 line 1)

Regarding **Claims 28**, in addition to the elements stated regarding claim 20, Birrell discloses:

further comprising a plurality of function keys and a function key interface operable with said plurality of function keys, said function keys generating user

commands to said audio controller through said function key interface (i.e. a user interface that includes one or more buttons or other user input devices (col. 4 lines 14 – 15) and playing back audio due to a user input (col. 7 lines 60 – 65).

Regarding **Claims 34**, in addition to the elements stated above regarding claim 20, Birrell further discloses:

wherein said compressed audio data is stored in one or more audio files on said drive (i.e. a Hard disk that stores compressed audio files (fig.1 element 104);

said computer system further comprising a play list software program for creating and storing a play list comprising one or more said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

Regarding **Claims 35**, in addition to the elements stated above regarding claim 34, Birrell does not disclose the play list software program is executable only when said computer is on. However, it is obvious that this would be the case. If the system were not on, there would be no power available and the interrupts would not be sent thus reading upon the limitation wherein said play list software program is executable only when said computer is on or in power state S0.

Regarding **Claims 36**, in addition to the elements stated above regarding claim 35, Birrell further discloses:

wherein said audio controller is further adapted to cause said drive to read said compressed audio data based, at least in part, on said stored play list (i.e. additional data is copied from non-volatile storage medium into volatile storage medium (col. 3 lines 51 – 52) and said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16).

Regarding **Claim 37**, Birrell discloses:

A computer system adapted to play audio files, said computer system comprising:

a system CPU; memory; and at least one drive comprising compressed audio data, said compressed audio data residing in one or more audio files (i.e. a CPU, a RAM, a disk with compressed audio files (fig. 1 elements 102, 108 and 104)

a play list software program for selecting a play list comprising one or more of said audio files (i.e. storing a table of contents and play state information in RAM (col. 5 lines 39 – 50)

an audio controller coupled to said system CPU, memory and drive (i.e. a ROM that stores control programs)

said audio controller being adapted to cause said drive to read said compressed audio data, to cause said system CPU to decompress said compressed audio data, thereby providing decompressed audio data (i.e. the control programs include a decompression procedure (col. 5 lines 22 – 23), play procedure (col. 5 lines 20 – 21), said play procedure determines when to copy data from the disk (col. 6 lines 14 – 16)

Birrell does not disclose storing the decompressed data in said memory. However, Examiner takes official notice that it would have been obvious to one of ordinary skill in the art at the time of the invention to store the decompressed data prior to the A/D conversion. One would have been motivated to do so to buffer the data in order to provide a smooth playback and avoid unnecessary gaps within playback.

Claims 29, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birrell (U.S. Patent 6,322,175) in view of Alexander (U.S. Patent 6,380,968).

Regarding **Claims 29**, in addition to the elements stated above regarding claim 28, Birrell does not explicitly disclose a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

.further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device,

determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

One of ordinary skill in the art at the time of the invention would have been motivated to use Alexander's interrupts to alert Birrell's CPU of user inputs. Birrell does not explicitly disclose how the device processes user inputs and using interrupts as Alexander discloses would have been obvious to one of ordinary skill in the art at the time of the invention to permit various changes in state of the device.

Regarding **Claims 30**, in addition to the elements stated above regarding claim 29, Birrell discloses:

standard audio player software (i.e. control programs for the system (col. 4 lines 11 – 12)

Birrell does not disclose the CPU utilizing interrupts to control standard audio player software.

Alexander discloses:

wherein said CPU utilizes said interrupts to control said standard audio player software (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

Motivation to combine these elements is given above regarding claim 29.

Regarding **Claims 33**, in addition to the elements stated above regarding claim 29, Birrell does not explicitly disclose a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU.

Alexander discloses:

further comprising a software driver for receiving interrupts generated by at least one of said plurality of function keys and for passing said interrupts to said system CPU (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 – 14)

Motivation to combine these elements is given above regarding claim 29.

Moreover, neither Birrell nor Alexander discloses the software driver not doing these operations unless the computer system is on. However, it is obvious that this would be the case. If the system were not on, there would be no power available and the interrupts would not be sent thus reading on the limitation wherein the software driver is adapted to not do these operations unless the computer system is on, in sleep mode, in suspend to RAM mode, or in one of the power states S0 or S3.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (U.S. Patent 6,763,458) in view of Birrell (U.S. Patent 6,332,175).

Regarding **Claim 39**, Watanabe does not explicily disclose placing said CPU in a standby state when said system CPU is not decompressing said compressed audio data.

Birrell discloses:

wherein said audio controller is further adapted to place said CPU in standby state when said system CPU is not decompressing said compressed audio data (i.e. the control programs include a power down procedure (col. 5 lines 24 – 25) and in a preferred embodiment, one predefined power down condition is data is not being played (col. 7 lines 22 – 24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Birrell's power saving teachings to Watanabe's audio appliance mode for the purpose of saving power.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe (U.S. Patent 6,763,458) in view of Alexander (U.S. Patent 6,380,968).

Regarding **Claims 46**, in addition to the elements stated above regarding claim 38, Watanabe discloses:

standard audio player software (col. 38)

Watanabe does not disclose the CPU utilizing interrupts to control standard audio player software.

Alexander discloses:

wherein said CPU utilizes said interrupts to control said standard audio player software (i.e. a cursor detect circuit that receives an interrupt from a user input device, determines the nature of the interrupt and instructs the microcontroller of it (col. 7 lines 11 - 14)

One of ordinary skill in the art at the time of the invention would have been motivated to use Alexander's interrupts to alert Watanabe's device of user inputs. Watanabe does not explicitly disclose how the device processes user inputs and using interrupts as Alexander discloses would have been obvious to one of ordinary skill in the art at the time of the invention to permit various changes in state of the device.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7546. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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